Mobile Lancher One
Kennedy Space Center
Titusville Vic.
Brevard County
Florida

HAER FL-4

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

PHOTOGRAPHS

Historic American Engineering Record
National Park Service
Department of the Interior
Washington, D.C. 20240

HISTORIC AMERICAN ENGINEERING RECORD

FL-4

MOBILE LAUNCHER ONE

Date: 1966-68; altered in mid 1970's; disassembled in 1983.

Location: Kennedy Space Center, Titusville Vicinity, Brevard County, Florida.

Owner: Originally; National Aeronautics and Space Administration.

Significance: The mobile launcher is a representitive example of the engineering and technology used in the U.S. manned space program. Mobile Launcher One formed an integral part of the Apollo program and played an important part in several space missions.

Historian: Dan Clement, 1984. Special thanks to Harry Butowsky, historian with the National Park Service, for his technical assistance.

The Apollo program ushered in a new era in U.S. manned space flight and brought about many technolgical advances to the NASA space program. The mobile launcher was one example of how changes were made to improve the system. Prior to the Apollo program, launch vehicles were assembled and checked out on their respective launch pads. The launch umbilical tower which supported the launch vehicle, although movable, was confined to the area around the launch pad. With Apollo, the three stages of the launch vehicle were assembled on a mobile launcher inside the large Vehicle Assembly Building (VAB). Once assembled and checked, the launcher and launch vehicle was moved from the VAB to the launch pad by a large crawler-transporter placed underneath the launcher. This system of vehicle assembly protected the launch vehicle from exposure to the elements and reduced the amount of time spent at the launch pad.[1]

The mobile launcher was divided into two major parts and weighed approximately 10.5 million pounds. The first was the launch platform. This was a large, two story steel structure that formed the base of the launcher. It was 25 feet high, 160 feet long and 136 feet wide. Its three levels provided 12,000 square feet of floor space. Second, was the launch umbilical tower (LUT), a 380 foot tall structure that supported the large Saturn rockets. Containing two elevators, eighteen work platforms, and numerous umbilical service arms, the LUT allowed access to any part of the launch vehicle that required maintenance. Topping off the LUT was a 25 ton hammerhead crane. When not in use the mobile launcher was stored in a parking area to the north of the VAB.[2]

Mobile Launcher One (ML-1) was one of three launchers built to carry the Saturn V rocket used in the Apollo program. Theoritically, three launchers allowed one launch vehicle to be assembled while one sat on the launch pad, and another served as backup. This allowed for shorter time periods between launches than would be otherwise possible. Of the three launchers, ML-1 was perhaps the most important. The three Apollo flights to lift off of ML-1 were: 1) Apollo 4, the first test flight of the Saturn V rocket; 2) Apollo 8, the first space flight to leave earth's orbit and circle the moon; and 3) Apollo 11, the first manned landing on the moon. Also launched from ML-1 were three Skylab missions and the American-Russian Apollo-Soyuz Test Project (ASTP). Added to ML-1 for the ASTP and Skylab missions was a steel structure known as a milk stool.[3] This allowed the smaller Saturn 1B rocket to be used in place of the Saturn V.

The three mobile launch units have been disassembled and their launch platforms have been modified to serve the Space Shuttle. This "reuse" of the mobile launchers have helped to reduce expenses associated with America's on going space program.

FOOTNOTES

1) Anderson, Frank, Jr., Orders of Magnitude, A history of NACA and NASA 1915-1980, NASA Scientific and Technological Branch, 1981, p. 45.

2) All technological information in this paragraph comes from "Man in Space, Reconnaissance Survey, ", Denver Service Ctr., National Park Service, Dept. of the Interior, p. 53

3) from a conversion with Harry Butowsky, historian, National Park Service, Washington Office.

BIBLIOGRAPHY

Anderson, Frank, Jr., Orders of Magnitude, A History OF NACA and NASA, 1915-1980, NASA Scientific and Technological Information Branch, 1981.

"Man in Space, Reconnaissance Survey", Denver Service Center, National Park Service, Dept. of the Interior, 1981.